This listing of claims will replace all prior versions and listings of claims in this application:

b.) Listing of Claims

1. (Currently amended) A method for examining structures on a semiconductor substrate that has a thickness, the method comprising:

obtaining integrated circuits as structures on the semiconductor substrate, wherein the structures on the semiconductor substrate are passivated;

penetrating and imaging the structures with X-radiation in an imaging X-ray microscope onto a spatially resolving detector; ~~and~~

establishing of a wavelength or a wavelength region of the X-radiation as a function of the thickness of the semiconductor substrate in such a way that transmission of the X-radiation through the semiconductor substrate is at least sufficient for detection of the X-radiation and for obtaining a high contrast image; and

observing changes in distribution of a material of the structures corresponding to a change of contrast of the high contrast image.

2. (Previously amended) The method as defined in Claim 1, further comprising reducing the thickness of the semiconductor substrate without affecting the structures.

3. (Previously amended) The method as defined in Claim 1, wherein the semiconductor substrate is made of silicon, the substrate thickness is less than 30 μ m, and the X-radiation has a wavelength between 0.1 nm and 2 nm.

4. (Previously amended) The method as defined in Claim 1, wherein the wavelength of the X-radiation is selected in accordance with Rayleigh-Gans algorithms for scattering to provide an optimum X-ray optical scattering capability for the structures on the substrate in order to obtain the high-contrast image with a high signal-to-noise ratio.

5. (Previously amended) The method as defined in Claim 1, wherein the wavelength of the X-radiation selected for examination of metal structures on the substrate is in a

vicinity of corresponding absorption discontinuities of the metals, resulting in the high image contrast.

6. (Previously amended) The method as defined in Claim 1, wherein the X-radiation impinges upon the semiconductor substrate at a side containing no structures.

7. (Previously amended) The method as defined in Claim 1, wherein the structures are imaged at different observation angles in order to allow stereographic and tomographic reconstructions.

8. (Previously amended) The method as defined in Claim 1, wherein the X-ray microscope is operating in phase contrast to provide a minimum number of photons and minimal exposure time for obtaining an image.

9. (Previously amended) The method as defined in Claim 1, wherein a segmented phase plate is used in a back focal plane of an X-ray objective.

10. (Previously amended) The method as defined in Claim 9, wherein a segmented stop disposed between an X-ray source and a condenser of the X-ray microscope is used.

11. (Previously amended) The method of Claim 10, wherein a segmented annular condenser zone plate, or a rotating condenser having a chopper disk, is used as the condenser.

12. (Currently amended) An imaging X-ray microscope for examining structures on a semiconductor substrate having a thickness, the X-radiation microscope comprising:

a specimen chamber for examining a specimen, wherein the specimen is an integrated circuit with the structures formed on the semiconductor substrate and wherein the structures are passivated;

an objective for imaging the structures with X-radiation on a spatially resolving detector; and

an X-radiation source generating the X-radiation having a wavelength which is a function of the thickness of the semiconductor substrate, wherein transmission of the X-radiation through the semiconductor substrate is at least sufficient for detection of the X-radiation, and for obtaining a high-contrast image <u>to observe changes in distribution of a material of the structures corresponding to a change of contrast of the high contrast image</u>.

13. (Previously amended) The imaging X-ray microscope as defined in Claim 12, wherein a segmented phase plate is disposed in a back focal plane of the X-ray objective.

14. (Previously amended) The imaging X-ray microscope as defined in Claim 13, wherein a segmented stop is disposed between the X-radiation source and a condenser of the X-ray microscope.

15. (Previously amended) The imaging X-ray microscope as defined in Claim 14, wherein a segmented annular condenser zone plate or a rotating condenser having a chopper disk is provided as the condenser.